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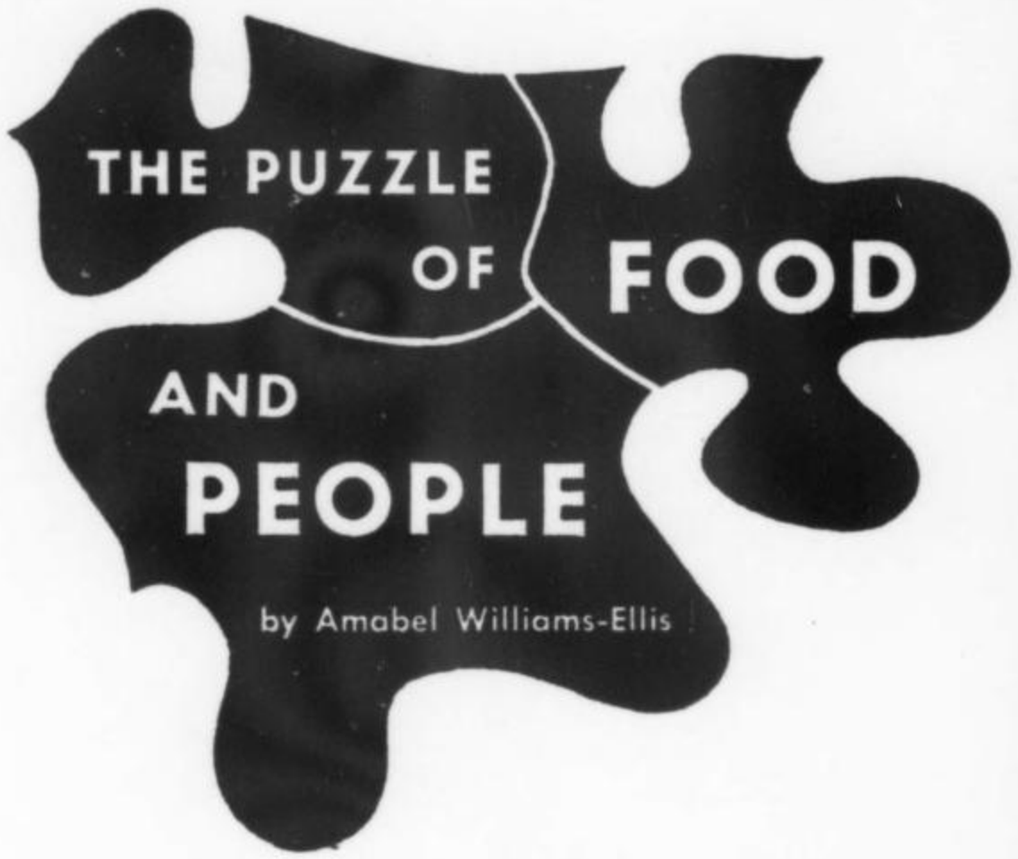

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"THE PUZZLE OF FOOD AND PEOPLE" was written for UNESCO by Mrs. Amabel Williams-Ellis, an English woman. The letters U-N-E-S-C-O stand for the United Nations Educational, Scientific and Cultural Organization, a UN agency which works for peace and understanding largely with and through the schools.

Mrs. Williams-Ellis put this book together to help boys and girls in many countries understand one of the big problems facing the world today. UNESCO has several reasons for being interested in "Food and People" problems. In the first place this international agency works through Education: that is, it helps people learn about the problems they will have to solve. It believes in bringing about full discussion of many points of view. This helps carry out the "E" in UNESCO.

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GEORGE D. STODDARD
President of the University of Illinois
Chairman of the U. S. National
Commission for UNESCO

One of the most serious problems in the world today is food for all. *The Puzzle of Food and People,* a geography reader, presents words and images which will capture the interest of children. UNESCO is to be commended for making this manuscript available. Teachers will find it helpful in the teaching of social and natural sciences, history, and geography.

ROBERT H. REID, *Executive Assistant*
NEA Committee on International
Relations

PROBLEMS of a SUB-CONTINENT

by André SIEGFRIED, of the Académie Française

Studying India is like leaning over the brink of an abyss from which a timeless past seems to a rise, envelop and penetrate one's very being; it means experiencing a terrible climate in which life and death intermingle, where human density is almost pathological and where an intense religious atmosphere eloquently expresses the primacy of the spiritual.

It is through the impact of such impressions that one becomes acquainted with two States, newcomers to political independance and eager for the modernization on which their existence depends. Their traditional environment is millinary, but their problems are modern. Liberation has been achieved, but adaptation to the social and economic conditions of the 20th century is proving to be more difficult. All the questions which are stirring the India of today spring from these two contradictory sets of conditions.

The first of these questions, facing both Pakistan and India, is how best to create a modern state together with the institutions and methods needed to ensure its efficient working in a society as yet archaic.

This sub-continent, clearly bounded by the Himalayas, the Arakan and the Ocean has continually come under the rule of foreign conquerors: the forts of Agra and of Delhi are impressive monuments to the Mogul power and, only yesterday, British Viceroys governed 400,000,000 Indians.

In this environment dominated by a concern for metaphysics, the notion of the State was long an alien concept, and responsability for order rested on the authority and competence of a handful of British civil servants. Now that these men have left, will their Indian or Pakistan successors be capable of administering, by western techniques, the developed State structures which they have inherited with a society as yet largely medieval?

Karachi and New Delhi certainly have able leaders trained in the British school, but they lack that framework of experienced officials on which execution primarily depends. We who live in an old social structure where the difference between the highest and the lowest in a hierarchy is, in fact, trifling, cannot easily appraise the obstacle created by a lack of officials able to interpret an order. First-rate ministers — and India has them — are not enough; heads of offices are also needed.

How, one wonders, will this education of civil servants be carried out, and will the Indian administration be able to maintain the high level achieved by the previous régime. Intelligence is certainly not lacking, but rather a certain orderliness of method, a certain collective discipline in conduct. How can an administration of the Western type operate in Asia with a national staff? This is certainly one of the first questions raised in the mind of an observer.

A gigantic programme faces the new leaders of India, first in the modernization which is closely linked with the problem of illiteracy and the magnificient efforts now being made to develop the country's teaching and educational resources.

The technical and administrative work carried out by the British was considerable — in some respects outstanding — but the need for adequate mechanical equipment remains urgent. Agriculture is still in the era of the camel and the medieval cart, while the existing system of land ownership and tilling demands (the word is not too strong) a revolution. Moreover, the industrialization of the new country — still too exclusively agricultural — seems indispensable, if a too numerous population is to be given the chance of existence. This population grows by three to four millions every year, producing surplus mouths that no one knows how to feed, and creating an ever-present threat of famine. Charity or assistance cannot solve this problem without a complete reform of the economy.

Such a transformation is less urgent for Pakistan, but for India it cannot long be delayed. Although India is now a great industrial country, and has been for half a century, its industrial potential is far from fully developed. The time when its former rulers, by treating its economy as a colonial one, arbitrarily gave it the role of exporter of raw materials and importer of manufactured articles, has now passed.

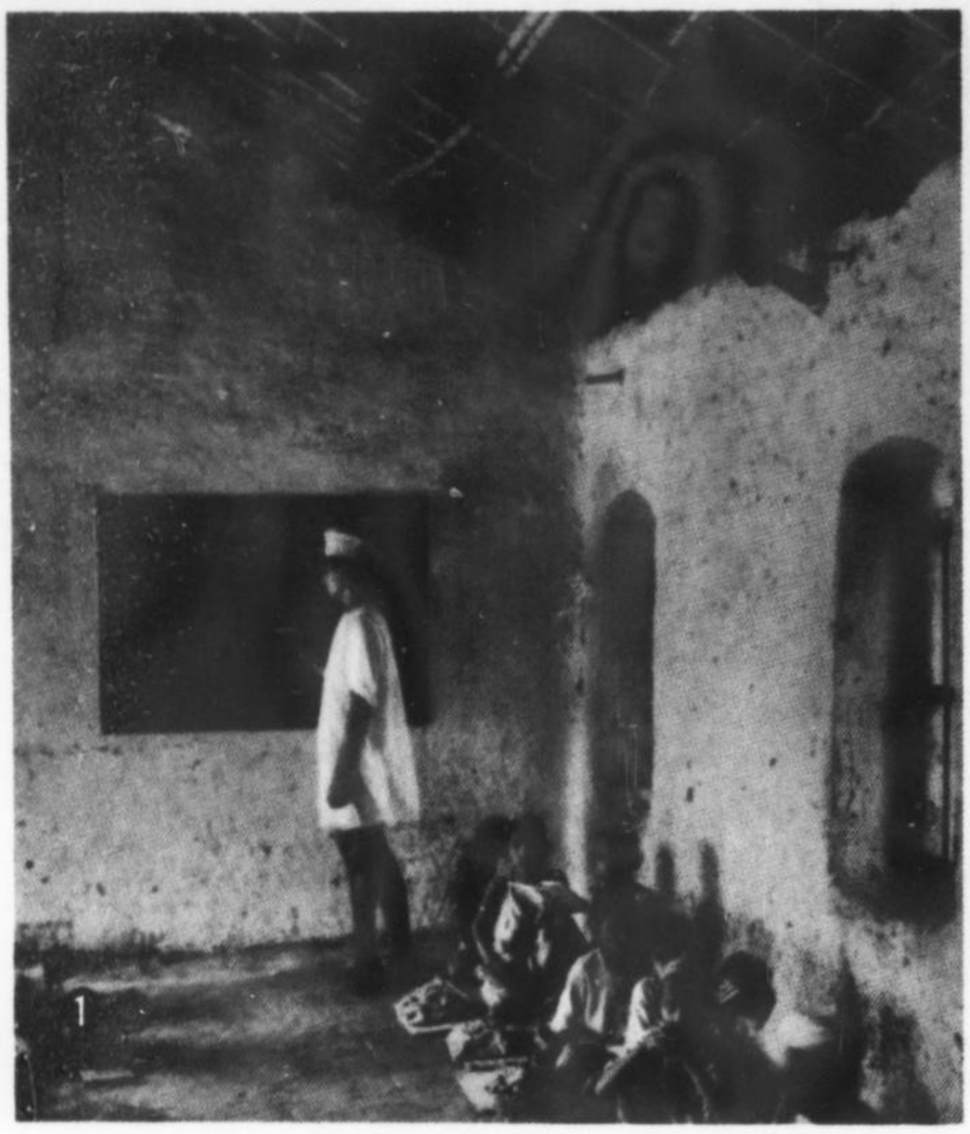
The problem now arises which undoubtedly more than any other troubles the India of Gandhi — when the country has for the first time become master of its own destiny. Is the vitally needed technical revolution compatible, either with the peasant and handicraft tradition, or with the requirements of the Hindu religion (or, in the case of Pakistan, with those of the Koran)? The tractor will bring into India's 700,000 villages methods of work which may profoundly disrupt rural life. And what of the handicraft worker on whom Gandhi, with his symbolic spinning wheel, had founded his entire patriotic and mystic resistance to the mechanical inroads of the West? Can we, moreover, disregard the fact that many reforms in hygiene and technology only too obviously contradict a ritual tradition to which the people are, for the most part, deeply attached?

Sooner or later an answer must be given to these questions which, each day, become more and more pressing. It is not hard to foresee the attitudes likely to be taken in this respect by the various sections of the population.

The officials, and with them the intelligentsia of the universities, give first place to the need for this modernization, going so far at times as to treat as superstitious the religious beliefs likely to raise opposition. The West alone is able for the time being to give them technical advice and adequate financial aid. But can we not sense that they would be prepared, eventually, to turn elsewhere for such assistance?

Officials, intellectuals and technicians are not all of India, however. And even amongst them, it is worth noting that there are many who may revert to the conservatism of their elders once the enthusiasm of their youth has passed. Is it not possible, therefore, that the religious tradition, which is so closely linked with the ritual tradition, may once again become the guiding influence in the country following a return to the deep-seated feelings of the masses? In the next popular election which candidate will be listened to and followed most closely — the one who advocates a policy of tractors, dams, anti-famine measures, progress in hygiene, or the one who appeals to the ancestral beliefs expressed in respected rites?

Thus, while the real question is to learn to what extent an Asiatic country can absorb and use the administrative and technical methods of the West, it is also essential to know how much the country really wants these methods and the kind of life they imply. The values of the East are not the same as ours. It is not, however, a question of superiority, since there is no proof whatsoever that the West is superior, but rather one of efficacy. One might wish to be twenty years older so as to see how India will act in solving these great problems which touch the depths of a people's soul.



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1 The Central Ministry of Education is now embarked on a large-scale programme for rural and adult education to reduce India's high percentage of illiteracy.

2 Great village audiences enjoy open-air filmstrip showings and other programmes at the Unesco Delhi State Pilot Project in Rural Adult Education.

THE BONDS UNITING INDIA AND UNESCO

by Sir Sarvepalli Radhakrishnan
Indian Ambassador in Moscow

INDIA is a young nation, but it has inherited prodigious, economic and educational problems which affect nearly 350 millions. Our illiteracy figure is as high as 85 %. Though 70 % of our people work on agriculture, we are short of foodgrains. Our standard of living is low. These are a few illustrations. Our leaders are aiming at building up a welfare state, at improving agriculture, at industrializing the country. We have undertaken schemes for large-scale irrigation, scientific research, and are building up technical institutions to train scientific and technical personnel. And so we look to Unesco for all the assistance it may render in our transforming ourselves.

India has been a foundation-member of Unesco, whose objectives have always appealed to the Indian mind and conscience. The delegations to Unesco included some of our foremost scientists and scholars. We have set up a National Commission to co-operate with Unesco and carry out its principles in our country. Above all, India believes in the healing power of the principles of Unesco.

We live in an age which is torn by conflict, fear and hatred. If we look below the surface of political events we become aware of the massive, emotional currents which are working to produce a new life in society. At the heart of the nature of things, there is always a dream. The greatest gift of life is the dream of a higher living. At the heart of the universe there is this dream of justice for all men.

When the framework of society becomes a cramping prison, it explodes by the explosive power latent in society. This is revolution. And every revolution causes suffering to innocent people, who have to pay for the atrocities and arrogance, laziness and selfishness of the forerunners or leaders. This does not, however, justify our embracing social systems which cramp the free spirit of the individual. Democracy is a balance between the organizing power of the state and the enterprise of the individual.

Enterprise, adventure is what saves civilization from staleness, from boredom. A civilization which is adventurous is free, vigorous, and creative. Where adventure is lacking, we have life without depth; literature without spirit, science concerned with the elaboration of details, art busy with trivialities.

The spirit of man craves for freedom, for co-operation. We must elect for wisdom or folly, for co-operation or extinction. No nation has a monopoly of either wisdom or folly. Unesco attemps to work for a just and enduring peace, for constructive adjustment of conflicting interests. Humanity's inability, nay refusal, to use the Unesco method and deal with the world problems in a civilized way is the most distressing feature of our time. India believes in Unesco; in the paths of peace and co-operation.

We are using all the instruments, the visual arts, theatre, dance, music, cinema, wireless, etc., for this one supreme purpose of fostering the intellectual and moral solidarity of mankind.

Rabindranath Tagore

(May 1861 — August 1941)

AT every period in its long history India has had hundreds of poets. None of them, however, ever had as many admirers in the West as Rabindranath Tagore, who was born just 90 years ago on May 6, 1861, in Calcutta. In 1913, the Nobel Prize for Literature confirmed his fame. It was then discovered that the poet had founded a school called Abode of Peace — Santiniketan — which he himself directed entirely, and that it was rapidly becoming a true international university. It was to this school that Tagore immediatly devoted the £8000 of the Nobel Prize. Poems, novels and plays, translated into English by the author, and into other languages, often by illustrious writers, presented "the mind of India" to a whole generation of Occidentals. By his own countrymen, too, he was considered a profound sage, whose words were received with the closest attention, and his doctrine on the relation between Indian thought and western civilization exercised undeniable influence. The East, he said, must accept industrialization and technical progress; but he considered that it was the role of the Orient to show that certain pernicious influences could be avoided, and that, above all, the basic spirituality of Eastern thought could be kept intact. He believed, therefore, that education had a primary role to play in this evolution, and that its fundamental object was "not merely to give us information, but make our life in harmony with all existence". Then came 1914. Tagore raised his voice on behalf of frustrated and oppressed justice : "There is a moral law in this world", he reminded the warring peoples, "which has its applications both to individuals and organized bodies of men. You cannot go on violating these laws in the name of your nation, yet enjoy their advantages as individuals. We may forget truth for our convenience, but truth does not forget us... Until man can feel the unity of mankind, the kind of barbarism which you call civilization will exist." Until his death Tagore showed no mercy towards nationalism, which he termed "that dominant intellectual abstraction". But he offered a glimpse of hope of a world transfigured, "when the diverse races and the nations have evolved their perfected distinct characteristics but all attached to the stem of humanity by the bond of love".

Muhammad Iqbal

(Feb. 1873 — April 1938)

MUHAMMAD Iqbal is revered by the people of Pakistan as one of the founders of their country. His poetry often predicted the independent State and in a celebrated speech delivered at Allahabad in 1930 he openly demanded it. But the appeal of his poetry, as yet little known outside of Pakistan, rises above all frontiers. For Iqbal is not only a great Pakistani poet and a great Muslim poet; he wrote for all mankind. His verse, composed either in Urdu or ancient Persian, remained faithful to traditional forms, but it added a new conception of the lyric with profoundly moving messages : a passionate desire for a world-wide culture, a great faith in the destiny of man, a belief in man's ability to develop and climb to ever higher peaks of perfection. For Iqbal the true aim of art was to make human life rich and beautiful. He had no patience with people who talked of art for art's sake — " There should be no opium eating in Art ", he once said. Art is not a pastime of intellectuals, but must " serve life " since the poet is endowed with a mission. He himself may have hesitated before defining his own mission. But his journey to Europe from 1905 to 1908 revealed it to him as the search for a great spiritual faith which he felt was alone capable of combatting the injustices of the modern world. He became the lyric and philosophic poet of Beauty and Love and their struggle against human wickedness — oppression and cupidity. The East, he said, must find itself and at the same time find its lost heritage. By the East, he meant especially Islam, which he defined as a total abandonment to God, and an active co-operation with divine forces. He quoted the Prophet : " The Earth does not belong to kings or rulers, but to God." Indignation or anger may have at times appeared in the dialogues between East and West which he used in his poetry, but never sterile hostility. On the contrary, he saw in the union of apparently opposing cultures the foundation of true progress. Unite the spirit of logic with mystic love, said one of his *ghazals* —

In the West Intellect is the source of life,
In the East Love is the basis of life.
Arise and lay the foundation of a New World.
By welding Intellect to Love.

PAKISTAN

Spiritual Home and National Reality

by Claude Lévi-Strauss
Ecole Pratique des Hautes Etudes
Sorbonne University

Of all the countries which make up our inhabited globe, Pakistan is perhaps the one which presents the most unusual characteristics. The laws defining its existence declare that it was founded as a State where all Moslems could live according to the principles of Islam. As such, it provides a spiritual home for all members of a single religious community regardless of their national origin. Nevertheless, Pakistan remains in the deepest sense of the word a nation. It groups under one unified authority lands that for thousands of years have been inhabited by the same people, most of whom have shared for centuries the same moral, political and religious principles forming the basis of the new State.

This dual aspect — the spiritual home and the national reality — characterizes the Pakistan of today. It explains too, certain paradoxes. For although Pakistan's hope is to bring together Moslems from all over pre-partition India, in reality 40 million Moslems — or roughly 30 per cent of the total number — are still scattered in other parts of the sub-continent.

As a nation, Pakistan has defined frontiers and distinctive geographic and sociological features. As a spiritual home, it somewhat anticipates its national individuality. For it must mould itself — with undiminished creative zeal — in the image of the great promise it wishes to be, not only for its own people but also for all those who some day may come seeking a means of life in keeping with their faith.

The Golden Fibre

One has only to glance at a map to understand the complexity of the problems confronting this nation which has set itself such lofty requirements. Not only do a thousand miles of Indian territory split East and West Pakistan but differences in climate, physiography and even language separate the two regions. Eastern Pakistan, though by far the smaller area, has the larger population; yet it is West Pakistan, which is less fertile, that compensates for the food shortages of the eastern zone. This zone (East Bengal) is almost entirely devoted to the cultivation of jute — the crop which enables the government to balance its national budget.

Pakistan happens to hold practically a world monopoly of raw jute but not only is the country unable to convert the fibre for lack of any jute-goods industry but inadequate port facilities even impede its exportation. (1).

To remedy this situation, the Government has embarked on a series of vast industrialization projects for the construction of the first jute mills at Narayanganj, a hydro-electric dam and a paper mill on the Karnafully-River, additional port facilities at Chittagong, a new port at the Ganges Delta, power stations at Malakand, and sugar refineries at Mardan.

(1) Most of the world's jute is grown in East Bengal. Known as the "Golden Fibre of Pakistan", it is used chiefly for making burlap, sacking, twine, rope, wrapping paper, and coarse fabrics. *(Editor's Note.)*

But the immense problems of financing these projects and of transforming a large portion of illiterate peasants into technically and socially educated workmen present formidable obstacles. Here United Nations and Unesco Technical Assistance and U. S. Point IV programmes may help in meeting some of the difficulties.

8,000,000 Refugees

Partition and with it the independence of Pakistan brought in its wake immense misery and suffering. Since 1947, eight million refugees have trekked into West Pakistan (Sind and Punjab) from all parts of India, leaving behind them everything they cherished — their personal belongings, their fortunes, their land and the tombs of their ancestors — in order to join the spiritual community of their own choosing.

Despite the efforts of the Central Government, hundreds of thousands of these refugees still live in conditions that defy description. Undoubtedly material aid must first be given to the adults; but surely the problem of re-adapting and rehabilitating the children is no less important than that of other children during and after the last world war when psychologists, sociologists, psychiatrists and educators from all over the world joined to find a solution.

SILVER FIBRE. Just as jute is regarded as the "golden fibre" of East Pakistan, cotton is the "silver fibre" of West Pakistan. About 90% of the cotton crop is grown under irrigation mostly from canals fed by the river Indus and the three Punjab rivers.

GOLDEN FIBRE. A cartload of jute—Pakistan's "golden fibre"—on its way to the market. Although most of the world's raw jute is produced in East Bengal, only 8-10% of the total cultivated area is devoted to jute growing.

Similar problems — and others even more specialised — also face East Bengal. To solve them will require no small degree of imagination and international collaboration. For even the most intensive jute cultivation cannot be expected to absorb the manpower or assure the livelihood of a population which exceeds in density 2,500 inhabitants per square mile. In fact, for centuries the people have sought a secondary means of income in *cottage industries* such as the manufacture of muslin cloth which has made Dacca famous. But even these rural crafts are conditioned by unique circumstances. They depend on international markets not only as a source for raw materials but as a sales outlet for the finished products.

To take a specific case, in East Bengal I recently visited a number of villages of incredible poverty in the region of Langalbund not far from Dacca. There, over 50,000 people live only by the manufacture of mother-of-pearl buttons. These buttons, of the kind used for cheap shirts and underwear, are produced in huge quantities by hand tools which might well have belonged to the early Middle Ages.

The raw materials needed for their production such as chemicals, cardboard and the foil spangles used to mount the buttons on the cardboard, have ceased coming in from abroad since Pakistan became independent. Following a world slump in demand, pearl button production in the villages has declined from 60,000 gross per week to less than 50,000 per month, while the price paid to the village craftsman has fallen 75 per cent.

This is only one example of the distressing problems facing Pakistan today. It would be a mistake, however, to view them merely as economic problems. No doubt the key to the dilemma lies first with the technicians.

Synthesis Of Humanity

For example, the material conditions of the Bengali peasant could be almost unbelievably improved by the introduction of small, specially manufactured, hand operated machines. These would simplify the different stages of work in the button industry. But who, better than Unesco can draw the attention of scientists and technicians to the fact (which they so often tend to overlook) that the purposes of science are not only to solve scientific problems but to find answers to social problems as well. The efforts of science should not only enable mankind to surpass itself; they must also help those who lag behind to catch up.

A young nation founded on an ancient civilization, Pakistan like other nations of Asia or America, synthesizes in its problems the whole of human development. At one and the same time, it suffers and lives in our Middle Ages which its villages perpetuate; in our 18th and 19th centuries which its first attempts at industrialization reproduce; in our 20th century whose advantages it is determined to secure. Perhaps the more developed nations, by providing Pakistan with some of the means to bridge these gaps and overcome such contradictions, may learn in return how man can succeed in attaining his full individual stature without denying any part of his heritage and of his past.

SHEPHERD

STUDENT

ARTIST

POTTER

VILLAGER

THE CULTURE OF I

by
Suniti Kumar Chatterji,
Professor,
Calcutta University

HUMAN civilization cannot be classified under a number of mutually exclusive heads. Like the colours in the solar prism, they gradually shade off one into another, and in totality present a colour harmony where nevertheless some distinct colour types are noticeable. These are different, no doubt, but not antagonistic. We thus can easily note a number of types in present-day civilization, as they can be noted for the earlier periods of history. Under each of these general types there are a number of sub-types, or attached types which present among themselves diversities of variations, but show likenesses due to genetic reasons or to affiliation. Taking note of those types which have an international implication or significance, embracing peoples different in their original race and language, we may say that *Four Distinct Types of Civilization* now prevail in the world. These are — (1) the Eur-American, (2) the Islamic, (3) The Chinese, and (4) the Indian. At least this is how it strikes us in India. And there is also a good deal of over-lapping, giving rise to complexities which sometimes lead to conflict and are sometimes harmonized.

The culture of India is a great complex, perhaps in its roots and its implications the greatest complex of its kind in the world. And in its complexity it is like life itself. It is vast as Nature herself, Nature as she has been manifested in the minor continent of India. In its all-inclusiveness, it may be compared to a tropical forest.

The geographical boundaries of India (I use India to mean the geographical and cultural entity that has always been so known since ancient Greek times, including both the States of India and Pakistan) make the country rather like a pocket, where whatever ethnic stocks arrive, stay on to attain a complete development, participating in the life already existing in the country and enriching it with new elements and contributions.

According to the most recent pronouncement of authorities in the matter, six distinct racial groups with their separate speeches belonging to four speech-families have co-mingled in blood and culture to give rise to the people of India and to the characterized culture or civilization of India. The process began at least five thousand years ago, and was accomplished some two thousand years ago, but it continued for some centuries more to function and to spread and consolidate the completed culture over the whole of India and over what have been called the lands of *Greater India,* in South-eastern Asia and in Central Asia.

After 700 A.D., and particularly after 1200 A.D., it came in contact with Islam —first the Islam of the Arab in Sindh, and afterwards the Islam of the Turk and the Persian in the Punjab. These brought about a profound change in the fortunes of this culture. In the 16th-17th centuries, Modern European and Christian influences touched the fringe of Indian culture in some coastal areas when the Portuguese established themselves in Goa and in a few other seaport towns, in Western India as well as in Bengal. But Portuguese influences were not deep enough, and the real contact with European culture started after the English became the masters of Bengal in 1757 and subsequently established their empire over the whole of India.

Indian culture in its broadest connotation would include all that has been achieved in the domain of thought and the good life by the people of India, as a whole or in groups, ever since the foundations of a common life, common traditions, common way of thinking and a common attitude were laid by the most important component elements of the Indian people (the Austric, the Dravidian and the Aryan speaking groups), beginning to form in the Upper Gangetic Plains a single people with a single Aryan speech. The culture that took shape in this way round the beginning of the first millennium B.C. took another five hundred years to be fully characterized, and a further five hundred years to expand from the Ganges Valley to the whole of India.

At the beginning of the Christian era, and it may be even a few centuries earlier, we have a Pan-Indian culture fully established. This culture has been, for want of a better term, described as *Ancient Indian,* or *Ancient Hindu,* with its three important philosophical and religious expressions, viz., Brahmanical, Buddhist and Jaina. It was not the creation of a single section only of the Indian people. It was not an Aryan culture, to start with, which was imposed by a superior civilized, white Aryan or Indo-European speaking people upon backward or savage, darkskinned, non-Aryan aboriginals, as it was at one time fondly believed. It was in fact the joint creation of the Aryan and non-Aryan — elements were contributed by all, which were combined into one single type.

The Significant Contribution Of Indian Civilization

IDEAS like *Sumsâra,* or transmigration and *Karmâ,* or a man's actions determining his fate, the mysticism of *Yôga* with its special discipline and practices, the doctrine of *Bhakti* or devotion to God —all these developed in an atmosphere of co-operation between Aryan and non-Aryan. And those who built up the structure of Hindu philosophy in its various schools, the Brahmans and others of North India (of mixed origin themselves) profited by the diversity of point of view presented by the different racial elements. The theory of caste, stressed division of mankind according to their qualities or character (*guna*) and their avocations (*karma*), and not according to race (a Brahman so born was no Brahman unless he went through certain ceremonies, and certain other ceremonies also exalted people to a higher position).

Apart from certain material and intellectual contributions made by India to the sum total of Human culture (these contributions have been accepted and now form permanent parts of the human heritage) the significant contribution of Indian civilization by which India can still serve humanity lies in her philosophy and her attitude to life, in seeking to model human relations on certain spiritual bases

"He who sees all creatures in himself,
And himself in all creatures, then he does not dislike or hate (anybody)."

(Isa-Upanisad.)

Being after all a human production of creation, Indian civilization cannot claim to be the sole repository of any particular idea or set of ideas, or behaviour or set of behaviours, which are not found elsewhere among other civilizations. The greatest things thought or said or done by people in India have also their echoes or counterparts in other lands among other peoples.

Unity In Diversity Harmony Of Contrasts

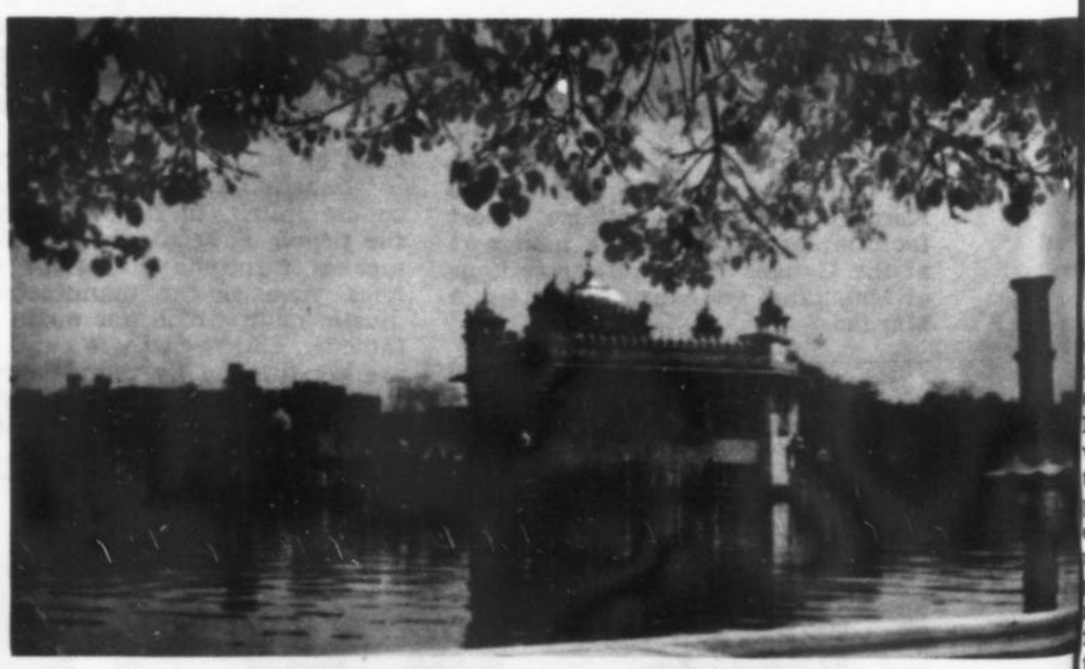
IT is on the *emphasis* that India has given to certain ideas and behaviours, or the manner in which certain lessons have been sought to be imparted for the realization of the good life, that the special character of Indian cultures lies. Sanskrit literature and its ancillary literatures in the ancient and modern provincial languages of India give an expression to these ideas and the lessons, in part or in totality. The cultural unity of India with all its diverse elements is the result of the implicit acceptance of the ideology of Sanskrit literature at its highest and most universal. The cultural history of the various peoples in India in ancient and mediaeval times is the *progressive Sanskritization* of these, and this Sanskritization is still proceeding. Such ideas (the higher spiritual thought and mystic experience of Islam, based on elements of love and beauty and certain deeper philospical speculations from Greek Neo-platonic philosophy and the Indian Vedanta) have supplied a common platform for Indianism and Islam; and the inherent Hellenism or Europeanism of Christianity has made an understanding between Indian thought and culture and Christian culture feasible.

The character of Indian culture may be expressed by one phrase : Acceptance of Unity in Diversity, or a Harmony of Contrasts.

This sense of Unity and Harmony which represents the most specific humanistic and human value of Indian culture, has as its basis the following:

1) A sense of Unity of all life and being as the expression of an Unseen Reality. This Unseen Reality is both immanent and transcendent. It embraces life and the universe (which are unending through aeons and is the Divine Spirit (*Paramâtman*), or Energy (*Sakti*) or Order (*Rta*) working through them.

"I do not want my house to be walled in on all sides and my windows to be stuffed. I want cultures of all lands to be blown about my house as freely as possible. But I refuse to be blown off my feet by any."
— MAHATMA GANDHI.



GOLDEN TEMPLE at Amritsar is situated on an island in the middle of a sacred lake surrounded by marble terraces. The temple has a copper dome covered with gold foil. It is the chief place of worship of the Sikhs who burn their dead like the Hindus.

NDIA

2) A Desire for Synthesis, to combine apparently disconnected or discordant fragments in life as well as experience in their proper place as an Essential Unity.

3) An Urge to realize this Ultimate Reality in its essential Unity in life through the path of knowledge, or work, or grace.

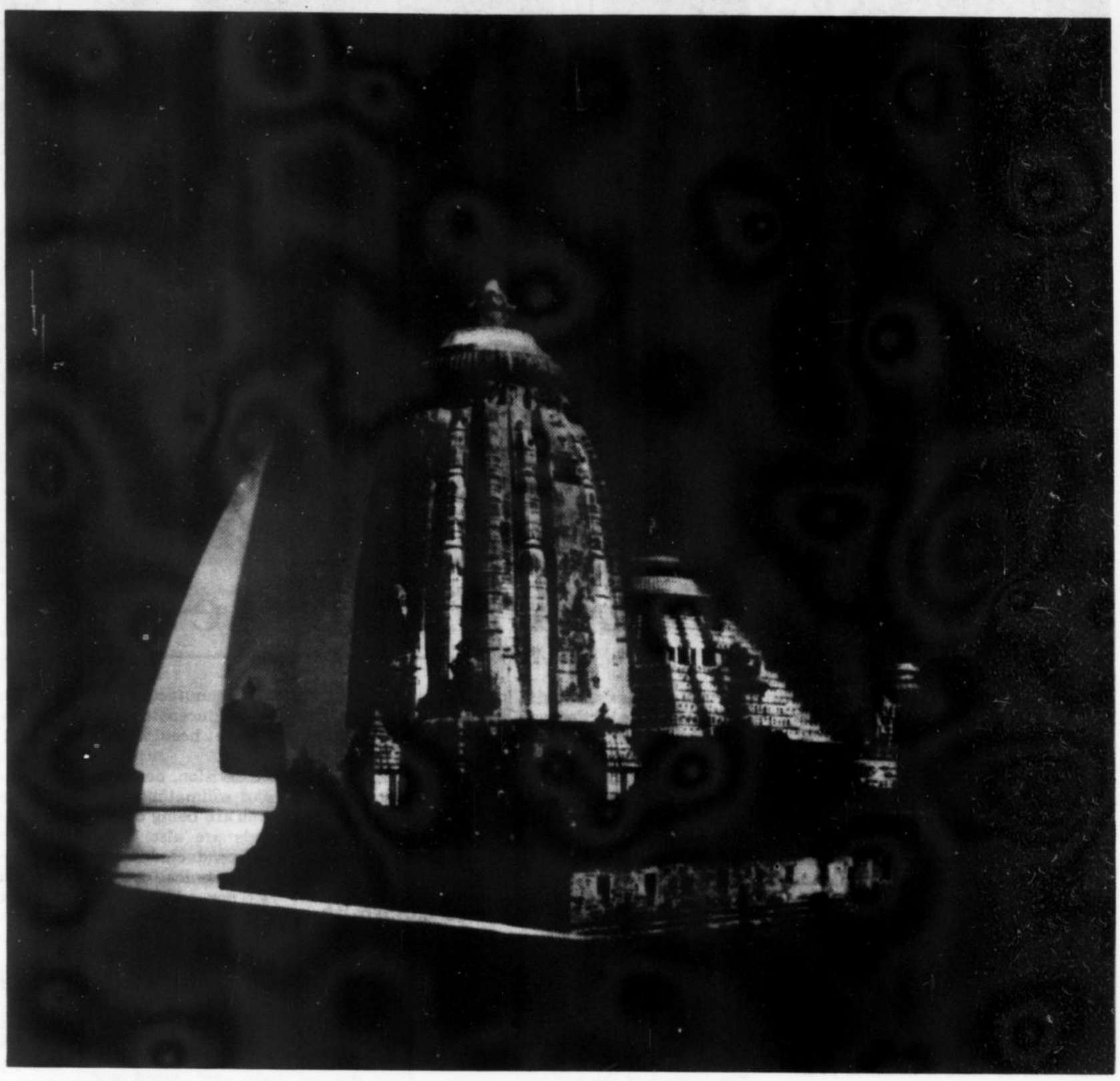
4) A rigid adherence to Intellect or Intelligence is sought to be harmonized in the higher plane with the Emotions.

5) A Recognition of the Sufferings and Sorrows of life with an attempt to go to the Root Causes to remove these sufferings and sorrows, by creating an Understanding through knowledge or faith or both.

6) A Feeling for the Sacredness of All Life which finds its outlet in the negative doctrine of Ahimsâ or Non-injury and the positive one of *Karunâ* or Sense of Pity and *Mâitri* of Active Charity.

7) A great Tolerance for all other beliefs, experiences and points of view. Indian Culture in its broad and universal aspect, as distinguished from the narrow sectarian points of view, recognizes that the Ultimate Reality manifests itself in various forms, and that Truth is approachable by diverse paths, and as such does not insist upon or inculcate a particular creed which must be accepted by all. It believes that man can attain to the *summun bonum* in life through the best that is available in his environment followed in a spirit of sincerity and charity. The Ultimate Truth does not pin itself down to the experiences or opinions of any single individual, but it is expressed in the experiences of the sum total of humanity.

Looked at from the point of view of man in his striving to know the truth and to do the good, the three basic ideas of Indian Culture can be summarized in the words—*Samanvaya* or Synthesis, *Satya-jijnâsâ* or Desire to know the Truth, and *Ahimsâ* or Non-injury.



JAGANNATH TEMPLE. Puri in Orissa, Northeast India, contains the world-famous shrine of Jagannath or "Lord of the World", name under which the Hindu god Vishnu is worshipped. It is perhaps the most frequented of all Hindu places of worship.

The Great Weakness Of Indian Culture

PARADOXICALLY enough, the great weakness of Indian culture lies in what is its greatest strength—its all-inclusiveness frequently conduces to absence of zeal or conviction, and tends to make people prone to compromise and to yield. Those who follow a narrower and a more circumscribed path are found to be stronger and better disciplined in struggle, frequently aggressive struggle. The Indian may be taught to tread the path of the Gods in cultivating a frame of mind *au-dessus de la mêlée;* but unless he has braced himself with the manly doctrine of the Bhagavad-Gitâ to fight for the good, it takes a good deal of suffering and sacrifice for him before he can stiffen himself into resistance. As a philosophy it is certainly on a higher plane, but as a practical doctrine it has its disadvantages. Yet the compromise between the highest thought and practical application was arrived at and consciously inculcated in Indian life. But thought rather than élan in action marks the characteristic Indian effort.

With this wide sweep seeking to embrace all, this sense of understanding and sympathy, this acceptance of the position that "diversity of thought is a part of the scheme of things and is quite in keeping with the scheme of Nature in other directions", it is no wonder that Indian Culture should be able to leaven the thoughts and views of other peoples who come to know it and did not dismiss it with impatience but sought to understand what it had to say and to give. For the greater part of a millennium, Indian culture and thought formed the guiding spirit in the intellectual and spiritual aspirations of the greater part of Asia—in what have been well called the lands of Greater India—Ceylon, which culturally is but a projection of India; Burma; the lands of Indo-China—particularly Siam, Cambodia and Champa or Old Cochin China; and the islands of Indonesia; besides ancient Eastern Iran, Central Asia, and Thibet.

The sister-civilization of China (supplying, with Indianism and Islam, one of the three mainsprings of civilization in Asia), also received its full share of the Indian spirit through Buddhism, and passed it on to Korea and Japan and to Giao-Chi or Viet-Nam. Tibet developed the elements it received of Indian culture in her own way, and passed it on to Mongolia.

The question of the influence of Indianism on the Hellenic World is problematical, as Indianism was developing contemporaneously with Hellenism. From the days of Alexander the Great, the Indian gymnosophists or recluses impressed the Greek mind, and there is evidence of contact between Greek thought and Indian thought from at least the 5th century B.C., and particularly in the 3rd century B.C.—earlier contacts are not proved (e.g. the indebtedness of Pythagoras and the earlier Greek philosophers to Indianism). India was indebted to Greece for an advance in astronomical knowledge, although the helio-centric theory of planetary world was her own discovery.

When the intellectual centre of Islam at Baghdad became a great clearing house of science and thought and material or technical advancement through the Arabic language, India made substantial contributions in mathematics and astronomy, in medicine, in certain arts and crafts, and in the spheres of mental and spiritual culture also—in literature (the beast fable with a moral and the marvellous and romantic tale, which found a place in world literature through the popularity in the European world of versions based on Arabic), and in mysticism.

Indianism In The Modern World

INDIANISM has now entered a new phase a force in "the development of universal civilization and of man's hymanistic conceptions". Contact with the European mind at the beginning of the last century quickened the Indian intellect and brought about a renaissance of the Indian spirit. The scientific curiosity of the West established Orientalism Studies as intellectual disciplines beside the study of the Classical Humanities, and the attempt at a just estimate of the Indian contribution to human culture on the part of European savants filled Indian scholars with a spirit of emulation in understanding and appraising the bases of their own civilization. Sir William Jones, the illustrious founder of the Asiatic Society of Bengal in 1784, was thus a great benefactor not only for Indians but for the whole of Humanity.

Raja Ram Mohan Roy was the first to take his stand as a modern and cosmopolitan Indian who offered to the world the Upanishads as India's great contribution. Ramakrishna Paramahamsa, Hindu saint and devotee, underlined the universality of Hindu religious thought and ideals, and his disciple Swami Vivekananda by this first public proclamation before the West at the Congress of Religions in Chicago in the year 1893 inaugurated a movement for the understanding and wider application in practical life of the Indian Vedanta philosophy.

Other great personalities came up before the international forum as harmonizers between the spirit of man and its expression through Indianism—Rabindranath Tagore, Mohandas Karamchand Gandhi, Sarvepalli Radhakrishnan, among others. Rabindranath's internationalism, which he considered as the best expression of Indianism and his sense of perception of the Ultimate Reality through Nature and Life, so beautifully expressed in his poetry, have been accepted and appreciated by the cultural élite all over the world. Radhakrishnan's insistence on the idealistic aspect of life as set forth by Indian thought has also been received with growing conviction by men of thought everywhere. And Gandhi's doctrine of Non-violence (Ahimsa) and Holding Fast to Truth (*Satyâgraha*) is looked upon with increasing interest by thinkers of the present day.

In England, in America, on the Continent (in Germany, in Scandinavia, in Holland, and in France, as well as elsewhere), the leaven of Indianism appears to be at work, slowly and imperceptibly, through translations of capital works of Indian thought and culture and through ancillary literature of various kinds. The internationalism or cosmopolitanism of India is something which suggests her entire personality. And at the present day, the message of India as expressed in the philosophy of the Vedanta and in the imaginative and emotional rationalism of Hinduism with regard to the fundamental basis of existence, is bringing something which—judging from current trends in thought and culture in Europe and America—both the heart and the intellect of Modern Man everywhere is craving for.

Drug research in one of India's new national chemical laboratories recently set up in different parts of the sub-continent. Above, Indian scientists at work on penicillin production at the Haffkine Institute in Bombay. Unesco is helping to extend such scientific research work.

India's Chain of National Research Laboratories

By Maurice Goldsmith

THE chain of national laboratories now being set up in India has been described by Prince Minister Pandit Nehru as "the foundations of progress". His words are a recognition of the fact that no modern State can hope to raise the standard of living of its people and strengthen its position in world economy, without a wise and full employment of science.

Dr. S.S. Bhatnagar, F.R.S., Director Indian Council of Scientific and Industrial Research, has made it clear that these laboratories will undertake work that is not ordinarily within the scope of industry. Their approach to industrial problems will be from a national point of view rather than just from the outlook of particular industries.

Without being restricted by ideas of immediate financial gain, the laboratories will be in a better position to employ suitable talent and try new approaches to problems.

Matters with wider social and economic aspects will be carried out by State scientific research. The laboratories will aim at improving industrial processes, so as to increase efficiency of production and develop new industries in India.

There are to be 11 national laboratories, each dealing with a specific industrial activity. They have been planned not only for today, but also for the future. The buildings have been designed to allow for expansion, and the equipment is the most up-to-date.

A completely new feature is the provision of pilot plants, which bring research to a point where its possibilities for commercial exploitation can be demonstrated.

The largest of the national laboratories is the National Physical Laboratory in New Delhi where research will be directed at the fullest use of India's raw materials. It will have the country's first electron microscope, as well as facilities for research in radar, meteorology, cosmic rays and the planetary system.

The laboratory is making precision instruments—for example, a beta ray spectrograph for studying beta-radiation from radioactive materials. Other investigations deal with the determination of nuclear magnetic moments by resonance of microwaves and dispersion and absorption of ultrasonics in liquids and the study of luminescence of rare earths for use in luminous paints.

The National Chemical Laboratory at Poona, with its seven specialized divisions is the link between scientific institutions and industry. Investigations include experiments on pure gelatine as a substitute for blood plasma in surgery, and the preparation of a drug called heparine, derived from cattle liver. Processes for the manufacture of citric acid, calcium glucenate and vitamin C have also been developed.

In the inorganic division, new and quicker methods of estimating rare metals and minerals are being developed. Experiments are also being conducted on the technical uses of non-edible oils.

The Fuel Research Institute at Digwadih (in the Jharia coalfields of Bihar) has undertaken a survey of the country's coal to assess quality and quantity, and its most effective use. Work is also being done on Indian oils and fuels derived from coal, wood and alcohol. The Institute will be assisted by six field stations in the coalfields.

The other institutes are those of Glass and Ceramics, Metallurgy, Food Technology, Drug Research, Leather Research, Building Research, Road Research, and Electro-Chemical Research.

To help, the Government during 1950 agreed to forego customs duty on scientific apparatus and equipment. This concession follows an earlier one allowing an industry to deduct research work expenditure from income tax returns. From the Rs. 2,500,000 thus collected, the industry was able to set up the Silk and Art Silk Mills Research Association.

Of great importance was the publication last year of the second volume of *Wealth of India*, which gives detailed information about the country's raw materials and industries. Two volumes of the National Register of Scientific and Technical Personnel have also been published.

India recognizes that it is not enough to have fine buildings and good apparatus. As Professor J.D. Bernal said at the opening of the National Physical Laboratory, "Science is not for appearance and prestige, but for work — and that work depends ultimately on men. Recognizing the importance of scientific workers and giving them the opportunity of doing their best for the country, should be the first considerations.

"A country like India cannot afford to lose even one trained scientific worker, nor can it, in the long run, do without the services of the many thousands more of potential scientists which better education could provide."

Unesco, through its programme of technical assistance for economic development, is lending India a helping hand in getting the chain of national laboratories under way.

Last November, an agreement was signed by the Indian Government and Unesco, under which India will receive the services of an international team of ten research workers for her national laboratories.

These scientists include specialists in plastics, low temperature physics, electrical engineering, mechanical engineering, hydraulics, and photo-elastic studies. Their mission fits into Unesco's belief that economic development, to be sound, must have a firm foundation in science and education.

The setting-up of these national laboratories will benefit all aspects of Indian life — industry, the universities, the villages. It is a continuation of the great tradition of Indian science, which in the past has made outstanding contributions to world knowledge and progress.

42,000.000 More Indians

India's census which has just been taken shows that the population is 361,820,000 while that of Pakistan is 75,887,000—a combined total of 437,500,000 people now living in the sub-continent. This is an increase in 10 years, when the last census was taken, of 42,000,000 mouths all clamouring to be fed. These statistics point to the urgent need for measures to increase agricultural productivity and working out a population policy if millions of men and women are to be saved from starvation.

Unesco Mission To Pakistan

A Unesco technical assistance team arrives in Pakistan this month to co-operate with the Government in harnessing the natural resources in that country, both above and below ground.

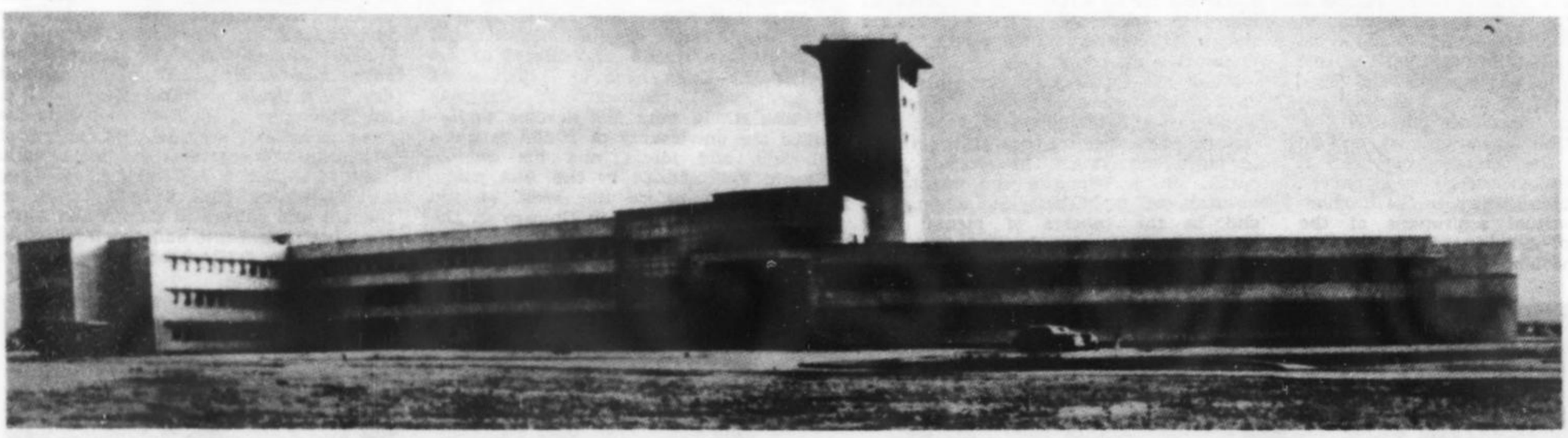
The leader of the mission, which is part of Unesco's $ 2,300,000 programme of technical aid in 1951, is Dr. Gunnar Norgaard, forty-seven year old Danish geodesy expert who reached Karachi in April. He is the advance guard of a four-man team requested by the Pakistani Government for its scientific research programme aimed at stepping up agricultural, mining and industrial production.

Before his departure for Pakistan, Dr. Norgaard explained that his main task will be to assist Pakistani scientists in mapping their country and thus lay the foundation of future prospecting for petroleum and other mineral resources.

The other three members of the team are Michael Fournier d'Albe, a British physicist now conducting research in France, Henry I. S. Thirlaway, a British scientist teaching in Australia and Karl Wienert, a German geophysicist.

They will aid in attempting to raise the amount of rainfall on marginal land now unsuited for agriculture, and in determining what regions are most vulnerable to earthquakes and what can be done to adapt building construction to these conditions.

The budget of the mission includes $ 35,000 for scientific equipment to be used in Pakistan. Five fellowships for Pakistani scientists also will be offered. In addition to this mission, Pakistan is scheduled to receive technical assistance this year from Unesco in the field of educational broadcasting.

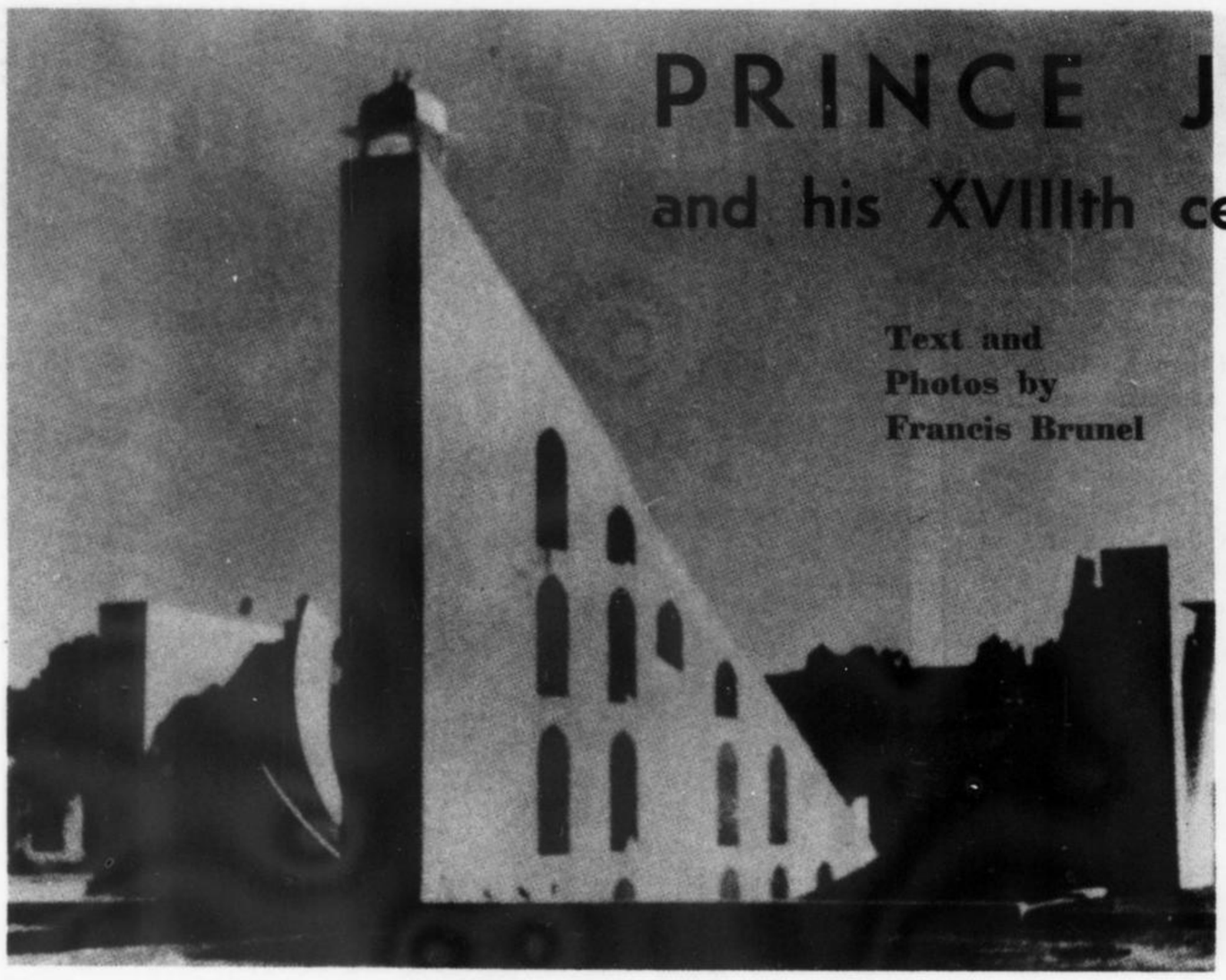


The National Physical Laboratory at Delhi is one of the largest, most modern scientific institutions in all Asia. Opened in January, 1950, the laboratory is directed at making the fullest use of India's raw materials. It has facilities for research in many fields including radar, meteorology and cosmic rays. This laboratory is also making various kinds of precision instruments.

PRINCE JAI SINGH

and his XVIIIth century observatories

Text and
Photos by
Francis Brunel



THE SAMRAT YANTRA.—"Emperor of Instruments"—is oriented in a North-South direction so as to point at the Pole Star. The observer's post at the uppermost point is 65 feet above the ground.

The Rama Yantra instrument, used to revise the astronomical tables of Sultan Mirza Ulugh Beg

EARLY in the 18th century, an Indian Prince, Jai Singh—descendant of the "Sons of the Sun"—conceived and carried out a plan to erect a series of observatories unparalleled in his time. Even today, the purity of line and abstract form of the structures he built, offer one of the most remarkable examples of astronomical architecture.

The Prince—Maharajah of Amber — was a member of one of the ancient and legendary dynasties that made Rajputana great. Mathematics, astronomy and architecture were his greatest interests, and in these fields he was regarded as one of the most talented men of his day.

Prince Jai Singh studied deeply the treatises of the Hindu astronomer Varaha Mihira, read occidental works on trigonometry and on the drawing up and use of logarithmic tables, and translated Greek and Arabic works into Sanscrit. His inquiring mind and his enthusiasm for science enabled him to contribute to his country's greatness in this field.

His urge to learn more of the scientific discoveries in the Western world caused him to send one of his principal astronomers and mathematicians to the court of the King of Portugal. In return the King sent Xavier da Silva to the Prince, and presented him with tables drawn up by the French astronomer, de la Hire.

Open-Air Observatories

PRINCE JAI SINGH considered the available astronomical data of his time inadequate. Even the famous tables of the Sultan Mirza Ulugh Beg of Samarkand, he felt, were out of date. So, he decided to draw up new and more accurate ones.

Between 1710 and 1730, therefore, he ordered the construction of five observatories —at Jaipur, Delhi, Mathura, Benares and at Ujjain, a town situated on the main meridian of India, on the Tropic of Cancer —so that the observations and calculations made by his astronomers and mathematicians could be verified and corroborated.

Today in Jaipur City, which Prince Jai Singh founded in 1728, the remarkable structures which made up one of these five open-air observatories, provide a record in stone of the scientific progress for which this mathematician and astronomer is famous.

Jaipur City itself, with its wide and regular streets, which divide it into six blocks, its painted houses and its crenellated walls overhung by rugged hills, is a monument to the energy and progressive efforts of the Prince.

When he ordered the building of the observatories, Prince Jai Singh planned to use types of apparatus made of metal, but finding these unsatisfactory, he had huge new instruments construted in stone. The size of these was intended to facilitate more accurate studies and readings of stellar space and time.

"Emperor of Instruments"

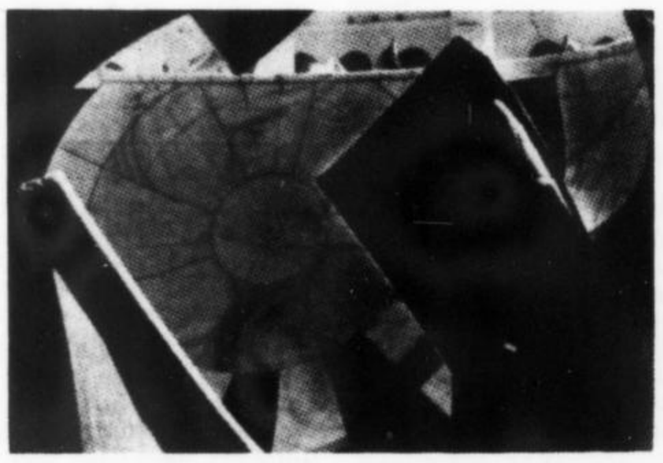
SOME of the structures, such as the Samrat Yantra, "the emperor of instruments", are as much as 65 feet high, run 130 feet in length from North to South and are proportionately wide from East to West.

Other instruments are in the form of twin, complementary constructions. Open spaces in one are reproduced in the masonry of the other, to permit easy reading at any point, so that in fact, these double instruments form one.

One instrument, the Rama Yantra, consists of two partitioned cylindrical structures, which make possible the observations required at that time for the revision of Ulugh Beg's tables of altitude and azimuth of heavenly bodies. Another, the Jai Prakash Yantra, is composed of two complementary hemispherical parts.

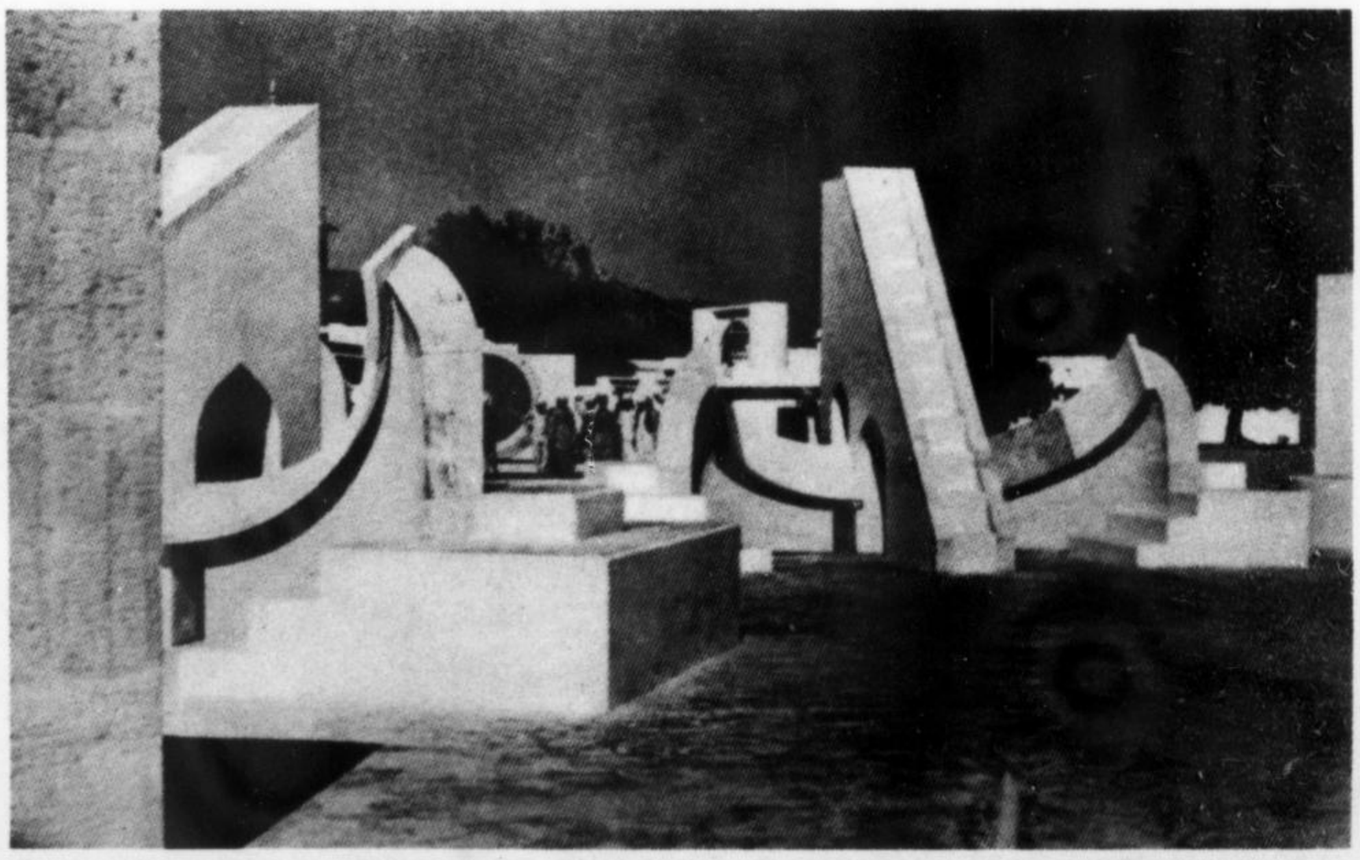
Besides these, and pointing into space are a series of other complicated instruments —evidence of the spirit of research which since ancient times, has urged man to extend the field of his knowledge and to explore and understand the great universe that surrounds him. Faced by the mystery, beauty and the grandiose scale of time and space in the starry universe, man has patiently tried to understand his role and his destiny by creating and perfecting the means of observation, study and measurement.

Prince Jai Singh, King of Amber and of Jaipur, was one such man fired by the urge to explore the infinite realms of space. As such, he belongs to that company of great men who have affirmed the primacy of the universal, and who, despite all obstacles, have achieved by scientific co-operation a living brotherhood of the mind.



The "Jai Prakash Yantra", a detail of which is shown here, enabled Indian astronomers to determine the position of the sun at various times.

One of the sun dials at the Jaipur observatory with, in the background, the giant "Samrat Yantra", constructed in the early years of the 18th century.



Some instruments in the open-air observatory at Jaipur. They were designed by Prince Jai Singh and his mathematicians and astronomers to allow more accurate observations of the stars in their courses than had hitherto been possible.

A New Chapter Opens In The Life Of Rural Ceylon

WET ZONE OF CEYLON. Rubber was introduced during the closing years of the 19th century and today covers a larger area than tea. Note strange shape which the roots have taken.

by Dr. D. Spencer Hatch ★

★ Dr. Spencer Hatch who is directing the work of Unesco's Minneriya Centre, is a veteran of thirty years in rural education work and an outstanding leader in this field.

Dr. Hatch, an American, first began to work in under-developed regions in 1922 when the International Committee of the Young Men's Christian Association sent him to Martandam, in the Indian state of Travancore. There he developed the concept of a rural centre to demonstrate simple new methods of raising living standards.

Dr. Hatch returned to the United States in 1940, but left immediately for Mexico to establish more rural centres. Later he joined the Inter-American Institute of Agricultural Sciences to head its rural extension work in Costa Rica.

Prior to directing the Ceylon centre, Dr. Hatch was a Unesco adviser in rural education to the Indian Government.

CENTURIES ago, the area of Ceylon known today as the North Central Province, was a flourishing land, whose abundant harvests, made possible by a large-scale irrigation system, gave it the name of "granary of the East".

Long years of neglect, a low rainfall and the prevalence of malaria, however, gradually turned this "dry zone" into a wasteland, forcing the bulk of Ceylon's population into what is now called the "wet zone"

Today, a new chapter is opening in the life of the people of rural Ceylon, not only for those in the malarial jungles of the North Central Province — acknowledged to be the poorest of all — but for those crowded to excess into the "wet zone" areas.

The change is being brought about through a large-scale government programme of settling new regions to ease population pressure on overcrowded land, and the latest contribution to this plan is the creation of a Unesco-Government of Ceylon Rural Fundamental Education Centre recently opened by M. Jaime Torres Bodet, Unesco's Director-General, at Minneriya.

Village "Laboratories"

MINNERIYA is the centre of a colonization experiment begun by the Ceylon Government as part of its resettlement programme, in which special emphasis has been laid on improved agricultural methods. The opening of the fundamental education demonstration centre there means the beginning of a new march forward — educational, cultural and scientific — which will not only help the people of that area, but will also be an example to other parts of Ceylon as well as to other countries with similar problems.

But the men, women and children who will most immediately benefit from the work of the Minneriya Centre are those who live within a twenty mile radius and whose villages constitute a "laboratory" for the Centre's extension programme. Just how badly they need help was shown by a report of the Lanka Mahila Samiti, a women's rural improvement organization, working in the North Central Province and other parts of Ceylon.

This report stated, in part :

"The North Central Province was once the seat of Lanka's Kings and the granary of the East. Then ensued long centuries of neglect. Today, her average villages present a sad picture... Centuries of malaria-ridden life have made the North Central Province peasant apathetic to outside interests. A resigned inertia is the result. It is not to be wondered at, for it is the logical outcome of a life utterly at the mercy of nature.

"Only the land means life to them. Paddy and chena crops are their sole source of income, and the terribly wasteful barter system still reigns dominant in this province where subsidiary incomes are absolutely essential, but do not exist...

"A good number of peasants are debt-ridden, leaving them neither progressively independent, self-respecting nor self-supporting. Most villages have no roads and are therefore cut off from the available amenities provided by the Government. Patients die on the way to the nearest medical institution or die because of their superstitious dislike of medical aid. Except the younger generation, the majority of North Central Province folk, especially the women, can neither read nor write."

There are many villages like those described above. Some have a mixed population, others are inhabited by Singhalese or mainly by Tamils, Mohammedans or aboriginal Veddahs. The Veddahs were formerly nomads who wandered from place to place in the jungle. Now, however, sections of them are settling down in villages and are beginning regular cultivation. It is they, above all, who need all types of fundamental education with special emphasis on basic agriculture and animal husbandry.

The Jungle Is Cleared

THE Minneriya Colony, where the new Fundamental Education Centre has been set up, is a symbol of new hope for such people, for it has shown in recent years how practicial ideas and strenuous efforts can work a "miracle" in the jungle. In this once dangerous malaria-infested area, the jungle has been cleared by the Government, the ancient irrigation system based on copious "tanks" which are the size of small lakes has been restored, and colonists, formerly displaced persons, have been settled on the land.

Thanks to the irrigation, good crops are now being produced, small and attractive houses have been built on the plots of land assigned to the different families, and, in general, the economic status of the people has been raised.

But a better economic status does not always mean a better life. The colonists still need education and the Centre's extension staff will therefore organize a special teaching programme for them, while continuing their work among villages as yet "unreclaimed".

While showing people of all castes, creeds and circumstances how they can improve their living conditions, the Centre at Minneriya will also be working out and demonstrating practical ways of self-help that can be usefully followed by the peoples of other countries.

The Ceylon project is also providing a significant demonstration of co-operation and co-ordination, the Centre being staffed by experts in literacy training, agricultural education, sanitation, rural industries and home economics in co-operation with Unesco and three other UN Specialized Agencies — the World Health Organization, the International Labour Organization and the Food and Agricultural Organization. Representatives of different related departments of the Ceylon Government will also join the staff. All the bodies as well as voluntary non-official agencies will work together in a common programme.

The Ceylon Centre will also be co-ordinated with the new Unesco Pilot-Project in Delhi State, India, and with any other Unesco Fundamental Education Projects which are being or are to be established in the countries of South and South East Asia.

In this once malaria-infested area of the Minneriya Colony, Ceylon, the jungle has been cleared to permit cultivation of rice—the staple diet of the inhabitants. Above, harvesting one of the fields.

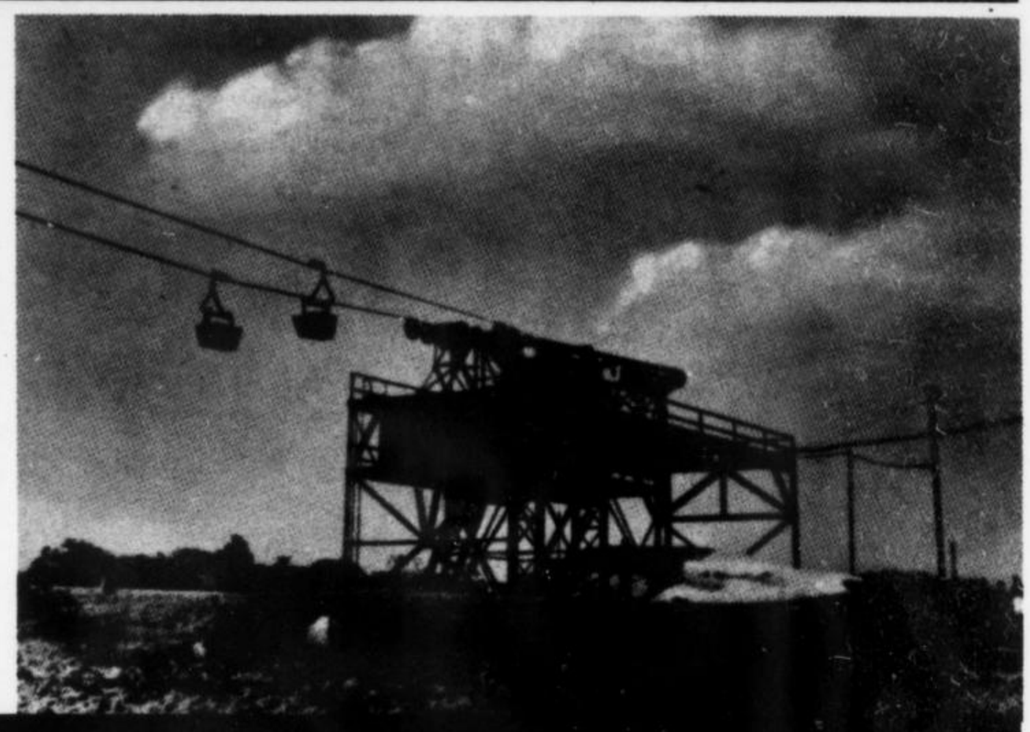
Veddah family house in Ginidamana village, part of Unesco education project at Minneriya. Formerly nomads, the Veddahs of Ceylon now live in villages and are beginning regular cultivation.

To Harness Its Resources

INDIA SETS UP FIRST ASIAN T.V.A.

by Tibor Mende, Author of "L'Inde devant l'orage"

One of the many dams under construction in India today—part of the vast schemes undertaken by the Government to harness natural resources in order to raise India out of poverty, and provide her people with a higher standard of living.



Work proceeds on Damodar power project. Sand is received through a rope-way from the Damodar river-bed and blown into mine-shafts and tunnels in sand-stowing colliery, above. Schemes like D.V.C. will alleviate India's serious food shortage.

THE Damodar is a wandering and capricious river in the North East of India. It rises in the hills of Chota Nagpur, assumes the dignity of a great river before it reaches Bengal and then joins the Hooghly not far below Calcutta. Though modest in size it is a giant in destruction. Like most of India's rivers it is given to extremes. With the rains it overflows its banks, destroys crops and dwellings, carries away men and cattle, disrupts communications and gravely damages the economy of the entire region. In the dry season, it dwindles to almost a trickle and slowly winds its way across a desolate country of arid fields.

But the valley of the Damodar, cutting across Bihar and Bengal, is India's richest mineral basin and its soil is potentially fertile. In this area millions of idle men wait to be usefully employed. If only the "River of Sorrows" — as the Damodar is called in West Bengal — could be made to serve them... it might drive turbines and generate electricity; it could be channelled to irrigate land and carry barges on canals. It might help to exploit the region's resources, to work factories, to modernize agriculture and to change the Valley of Destruction into one of hope and progress.

This is precisely what India's planners want the Damodar to do. To tame the river they have borrowed their methods from the United States Tennessee Valley Authority. India's answer to the Damodar's extravagance is a smaller T.V.A. which will put the river to work. The idea of the Damodar Valley Corporation (D.V.C.) goes back to the 1943 floods. The disastrous inundation of that year caused enormous damage and called for urgent action. It led to the planning of India's first multi-purpose river-scheme.

7 Million People to Benefit

THE D.V.C. was first conceived as a 10-year project calling for the building of eight dams with hydro-electric stations at each, a 200,000 kilowatt steam-power station, an irrigation barrage with 1,553 miles of distribution canals and a 90 mile-long navigation canal. The cost of this project - about 115 million dollars - was found to be beyond the means of the young Republic and consequently revised. According to the new schedule, the first phase of the scheme will be realized within five years and the remainder in slower successive stages. This first phase will include only four of the originally planned eight dams together with the barrage and irrigation systems. Thanks to a World Bank loan of $18,500,000 provided in April 1950, work on the D.V.C. project is progressing at an accelerated rate.

Already, Bihar's countryside is changed by the walls and chimneys which are rising, by the workers' huts and the army of men employed on the large-scale enterprise. When completed the D.V.C. scheme will provide irrigation for 750,000 acres and will generate about 350,000 kilowatts of electricity. Besides its basic objects the project has several other attractive features. It will provide a navigation canal which will connect the famous Raniganj coalfields with the port of Calcutta and thus relieve congestion in India's overburdened railways. As a by-product D.V.C. will provide facilities to combat effectively malaria, a disease that claims millions of victims in India each year. The benefits of D.V.C. will directly affect the lives of five million people in the valley and another two million town-dwellers. It had been calculated that the direct benefits of the scheme, translated into terms of current prices, would add about $50 millions to India's yearly national income. The indirect benefits, human and material, though not easy to calculate, would probably be even bigger.

Water rushing down these pipes from the catchment area of a dam at the top of the slope rotates the turbines at one of the newly-built power stations.

First of a Whole Series

SOME of the component parts of the D.V.C. are already taking shape. Considerable progress has been made in setting up a power-plant of 150,000 kilowatts at Bokaro. The Konar dam will be finished in 1952 and the operations on the Tilaiya dam are also in progress and may be completed by the middle of 1951. Preliminary work on two more of the projected eight dams — at Maithon and Pench-Hill — is also going forward.

The Damodar Valley Corporation however, is only the first in a series of impressive and significant ventures of a similar nature now being carried out in India. The sacred rivers of India are gradually being harnessed to serve man and to bring new hope to a people permanently on the margins or famine. For nothing has hampered independent India's progress more than her lack of food. To end her dependence on costly food imports, India's agriculture has to be modernized as quickly as possible. This means irrigation and fertilization. It means building canals and providing electric energy : in other words tapping India's water supply.

With few exceptions the country receives its annual rainfall — an average of 45 inches — in the three summer months. When the monsoon fails, starvation starts. That has been the sad history of India for centuries. In present-day India about 242 million acres of land are under cultivation. Of these not more than 20 per cent — about 47 million acres — are being irrigated. Yet waterways form India's basic wealth and the promise of her future well-being. They offer an answer to her three chief problems: food, health and rising population.

At present less than six per cent of India's available water wealth is being utilized; the rest is running to waste. Thus, the amount of electricity consumed in India annually is just about equal to that generated in the United States in a week for less than half as many people. But even this low Indian consumption accounts for only four big cities while some 90 per cent of the population uses almost nothing.

India's industrial expansion has just begun. This tinplate mill and other industrial projects will need new electric power plants which schemes like the Damodar Valley Corporation will help to provide.

A Synonym of Hope

CHEAP power, therefore, is India's primary need to raise herself out of poverty and to enable her to harness her natural resources. Whether for domestic purposes or the manufacturing of fertilizers, to improve agriculture or to conserve the country's meagre coal resources, cheap power is of supreme importance. Indirectly, India's river projects provide a great unifying factor, a new common denominater to cement together people divided by time-worn sectional loyalties.

The élan of a joint enterprise as well as the benefits of those schemes will be felt across provincial and language boundaries. Against the bleak background of the burnt, bare hills and the desolate fields, slowly and painfully emerges the new hope of clean and healthy villages, of well-irrigated fields and neatly terraced hillsides.

With the help of the D.V.C. and other river projects, India is moving out of her proverbial immobility. The enthusiasm that inspires her plans springs from the claim of one-sixth of mankind to obtain its overdue share of human progress.

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KALAKSHETRA

temple of beauty

MADAME RUKMINI DEVI, founder of Kalakshetra and one of the leading interpreters of the sacred dance of India, is seen above showing four of the gestures and postures each of which has a fixed symbolic value. The hands alone convey a whole vocabulary of " mudras " or signs.

"AND what would you call your mission in life?" The Hindu poet, surrounded by a group of Paris students, showed mild surprise. "The same as all artists", he replied gravely, "to civilize the barbarians..." Then the poet explained how in the course of his travels through Europe and America and across half the continent of Asia, he had been dismayed by the expressions of suspicion and anxiety on men's faces wherever he went. He had found nothing uplifting in the books they chose to read nor the theatres they visited. In fact, their entertainment sources generally seemed to represent the worst form of escapism. Nor were their children exempt. Brought up to make heroes of bandits and fighting men, their minds quickly became distorted by fear and hate.

"These millions of savages", continued the poet, "learn how to read, count and write. Some can even boast that their heads are crammed with a mass of knowledge. But to me, civilization means something different. It means the creation of beauty, but first there must be the search for beauty. Beauty must be understood." He paused, perhaps to give his next words more weight. "The best way to civilize this century, is to begin with the children. What would happen, for instance, if we taught them all to dance?"

The following day the students sought out the Hindu poet again. He began by telling them of a school in Madras called Kalakshetra, — temple of beauty, consecrated to art.

The illustration was apt. At first glance Kalakshetra seems just another school offering courses in the dance, music, painting and sculpture. But in actual fact, Kalakshetra is less interested in producing professionnals and artists than in producing men and women whose lives are rounded and complete, whose entire personality, mental, moral and physical, blends into a harmonious whole.

It was an Indian dancer, Madame Srimathi Rukmini Devi, who founded Kalakshetra early in January 1936; an Indian dancer who had devoted herself to a form of the dance (*natya*) so-called in honour of the Indian sage who codified this dance form. Madame Rukmini Devi has explained its significance in these terms:

"*Bharata natyam* simultaneously educates and disciplines: the physical body by exercizing all its members and calling out its vital energies in its rhythmical breathing; the mental faculties from memory to intelligence in understanding and carrying out the pattern and order of the many movements that make up the rhythmic vocabulary of the dance; the emotions in expressing those of the imagined characters of the dance story and conveying them to others, also the aesthetical happiness in creating an expression of beauty to which each dancer is an essential contributor; the aspirational impulse, the feeling out towards a larger and loftier life than that of the senses and circumstances."

These words became the "credo" of the school of Kalakshetra. Madame Rukmini Devi sought to show the underlying harmony uniting all the arts; their vital importance to progress in its many individual, national, religious and international forms; and at the same time, how the dance could serve the cause of peace through an understanding of the art and culture of all peoples.

The Indian dance "educates and disciplines the body, the mental faculties, the emotions and the spirit". Ram Gopal (above) is today considered one of the masters of the Indian classical ballet.

Kalakshetra soon became known as a *conservatoire*, an international cultural centre and a school where more than 600 children were educated by the most modern methods. Highly esteemed by her own countrymen, the founder of Kalakshetra has won the recognition of educators throughout the world. Madame Maria Montessori travelled half-way around the globe to meet her and for many years collaborated with the Indian dancer in her work at Madras.

Emotion, Truth, Beauty

KALAKSHETRA'S primary aim is to help every pupil give full expression to his artistic and creative ability. "It is my conviction", says Madame Rukmini Devi, "that the complete development of the skill and judgment and taste that are latent, though in varying degrees, in every child, will unconsciously solve most of the problems that divert and delay humanity on the way to progress." Therefore, in the different courses of instruction open to the children at Kalakshetra as much time and importance is devoted to the arts as is given to textbook and scientific training in other schools. Yet though Kalakshetra calls on all the arts to play their role in education and in the re-education of the emotions, greatest emphasis is nonetheless placed on music and dancing.

Many Western teachers too would like to give more prominence to dancing in their educational programmes. It is unfortunate, therefore, that folk dancing, figure dances and the modern rhythmics lack the powerful historical and religious force of *Bharata natyam* with its wealth of tradition dating back two and three thousand years.

The gestures, rhythms and postures used in the Indian dance and mime have their fixed symbolic values which blend harmoniously one into the other. The hands alone employ a whole vocabulary of signs (*mudras*) capable of expressing or evoking the most imaginative stories. Nowhere is this more fully shown than in the sacrificial dance where every type of rhythmic expression is conveyed, from the lift of an eyebrow to a curve of the fingertips, from a twist of the neck and shoulders to the smallest movements of the feet. The purpose of the dance at all times is to stir the emotions, and if it is an "expression" dance, also to reveal *satyam, shivam, sundaram* — that is to say, the true, the beautiful, and the good.

A people capable of creating and maintaining such deep symbolic values in the dance, were clearly destined to make full use of it as an educational medium as well. For according to Hinduism, it was the Shiva dance which created the world and re-creates it from moment to moment.

Music, whose mysterious power is increasingly recognized by psychiatrists, plays an equally important role. It is a pity that Indian music, with its wide range of tone modulations, is so little known outside Asia. Purely melodic, this music is based on natural intervals, each octave being normally divided into twenty-two unequal intervals. A certain number of specially chosen intervals form a melodic phrase or *raga*, of about seven notes.

Each melodic phrase corresponds to a particular emotional mood or impulse, or to a certain time or season. There are seven *ragas* for the morning, and six for the evening. If one adds to this wealth of melodic expression, the vast complexity of different rhythms, the possibilities of this musical language become inexhaustible. Not only can it satisfy the most finely attuned ear, but also the listener's desire for spiritual solace as well.

There are undoubtedly other musical systems — particularly in the western world — which could play as important a role in education as the classical Indian music of Kalakshetra. Drama and the plastic arts, if not the dance, could certainly be used to this end. But as a first step, we must recognize — as Madame Rukmini Devi has done, and, before her time, the ancient scholars of India and China, Plato and Montaigne — that, without the arts, there can be no education in the true sense of the word.

Admitting this, we can sympathize with the mission of our poet among the 'barbarians' and understand the work of the Indian dancer at Kalakshetra who recently summed up her philosophy of the dance with this sentence: "To bring the young to appreciate beauty and therefore to live it," she has written, "is one of our greatest tasks. With the rebirth of culture will be born not only great masterpieces of art for future generations to admire, but masterpieces of character, the birth into the present day of great geniuses who alone can lift the world from the uncivilized to the civilized and so will help the whole race to a standard of life which, even at its worst, can never be ugly, vulgar or cruel."